THE VALUE OF ENVIRONMENTAL IMPACT OF FISHERIES ON NUTRIENT DYNAMICS

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ABSTRACT

The Baltic Sea is referred as the most polluted sea in the world. The most serious problem is the eutrophication that is a consequence of nutrient loading through human based activities. Nutrient enrichment has led to growth of phytoplankton that has induced increased algal blooms and oxygen depletion in the sea bed that have resulted to changes in ecosystem balance. Conservation needs of the Baltic Sea are directed by HELCOM, the intergovernmental body on protecting Baltic Sea. The HELCOM Baltic Sea Action Plan objective is to restore the good ecological status of the Baltic marine environment by 2021. The agreement set up country-wise annual reduction targets for phosphorus and nitrogen loadings. Every member state should define their abatement measures in a cost efficient manner. The cost estimates for nutrient abatement varies significantly depending on the measures taken. Apart from abatement measures fisheries have a significant role in nutrient dynamics in the Baltic Sea. It is estimated that the phosphorus removal of fisheries accounts for 18% of anthropogenic load; corresponding share in nitrogen is 2.4%. Using the cost estimates of different abatement measures it is possible to estimate the shadow value of the positive environmental impact of fisheries. We estimated the real social value for the Finnish trawler fleet and compare that to realised value. Accounting for the positive value of the environmental externality increases the profits of the fisheries significantly. The increased profitability increased the potential resource rent and consequently the value of resources. The results show that the real social value of fisheries is considerably higher than realised.